

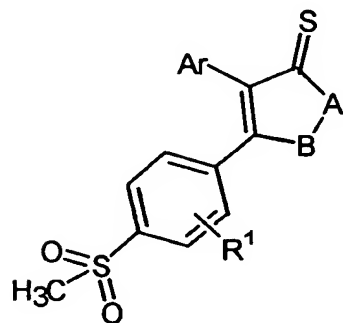
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

What is claimed is:

1. (Original) A thione derivative represented by formula 1:

Formula 1



wherein:

A and B each independently represent O, S, NR²; wherein R² represents hydrogen, C₁-C₄ alkyl, C₁-C₄ alkenyl, or aryl;

Ar represents aryl; heteroaryl; aryl or heteroaryl substituted with one to five radicals independently selected from the group consisting of C₁-C₄ alkyl, C₁-C₄ alkoxy, halogen, trifluoromethyl, nitro, acetoxy, amino, C₁-C₃ alkylamino, C₁-C₃ dialkylamino, hydroxy, C₁-C₃ hydroxyalkyl, and thioxy; and

R¹ represents hydrogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, halogen, cyano, nitro, hydroxy, amino, C₁-C₄ alkylamino, or C₁-C₄ dialkylamino;
or a non-toxic salt thereof.

2. (Original) The thione derivative according to claim 1 wherein

A and B each independently represent S or NH;

Ar represents phenyl; phenyl substituted with one to five radicals independently selected from the group consisting of C₁-C₄ alkyl, C₁-C₄ alkoxy, halogen, trifluoromethyl, acetoxy, and nitro; pyridyl; or naphthyl;

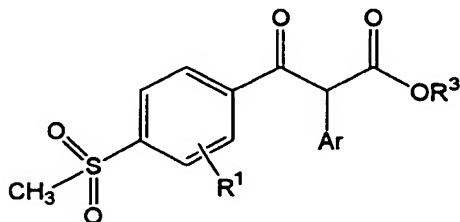
R¹ represents hydrogen or halogen;
or a non-toxic salt thereof.

3. (Currently Amended) The thione derivative according to claim 1 ~~or claim 2~~, which is selected from the group consisting of:

4-(4-ethoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(4-bromophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-toryl-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-phenyl-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-methoxyphenyl-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-(2-trifluoromethylphenyl)-[1,2]dithiol-3-thione;
4-(4-chlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(3,4-dichlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-pyridine-4-yl-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-pyridine-3-yl-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-pyridine-2-yl-[1,2]dithiol-3-thione;
4-(4-fluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(2,5-dimethoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(3,5-dimethylphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-(3-methoxyphenyl)-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-(2-nitrophenyl)-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-(3-trifluoromethylphenyl)-[1,2]dithiol-3-thione;
5-(4-methanesulfonylphenyl)-4-o-toryl-[1,2]dithiol-3-thione;
4-(2-chlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(2,4-dichlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(2-chloro-4-fluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(3,4-dimethoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(2-bromophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(2-fluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(2,4-difluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
4-(3,4-difluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;

5-(4-methanesulfonylphenyl)-4-naphthalene-2-yl-[1,2]dithiol-3-thione;
 5-(4-methanesulfonylphenyl)-4-pentafluorophenyl-[1,2]dithiol-3-thione;
 4-(4-isopropoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
 5-(4-methanesulfonylphenyl)-4-(4-propoxyphenyl)-[1,2]dithiol-3-thione;
 acetic acid 4-[5-(4-methanesulfonylphenyl)-3-thioxo-3H-[1,2]dithiol-4-yl]phenyl ester;
 5-(2-chloro-4-methanesulfonylphenyl)-4-(4-ethoxyphenyl)-[1,2]dithiol-3-thione;
 5-(2-chloro-4-methanesulfonylphenyl)-4-*p*-toryl-[1,2]dithiol-3-thione;
 4-(4-bromophenyl)-5-(2-chloro-4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;
 5-(2-chloro-4-methanesulfonylphenyl)-4-(4-methoxyphenyl)-[1,2]dithiol-3-thione;
 5-(3-fluoro-4-methanesulfonylphenyl)-4-*p*-toryl-[1,2]dithiol-3-thione;
 5-(3-fluoro-4-methanesulfonylphenyl)-4-(4-methoxyphenyl)-[1,2]dithiol-3-thione;
 acetic acid 4-[5-(3-fluoro-4-methanesulfonylphenyl)-3-thioxo-3H-[1,2]dithiol-4-yl]-phenyl ester;
 5-(4-methanesulfonylphenyl)-4-*p*-toryl-1,2-dihydropyrazole-3-thione;
 4-(3,4-dichlorophenyl)-5-(4-methanesulfonylphenyl)-1,2-dihydropyrazole-3-thione; and
 4-(4-chlorophenyl)-5-(4-methanesulfonylphenyl)-1,2-dihydropyrazole-3-thione
 or a non-toxic salt thereof.

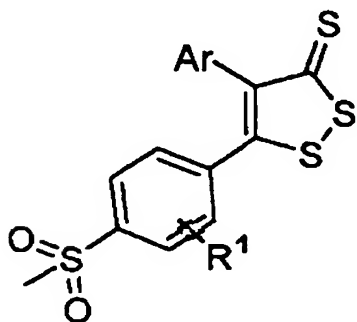
4. (Original) A propionic acid derivative represented by formula 2:
 Formula 2



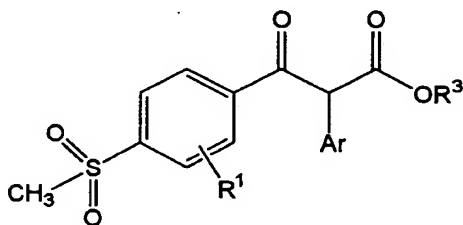
wherein, R¹ and Ar are as defined in claim 1 and R³ represents C₁-C₄ alkyl.

5. (Original) A method for preparing a thione derivative of formula 1a or a non-toxic salt thereof, comprising reacting a propionic acid derivative of formula 2 with phosphorus pentasulfide, Lawesson's Reagent, beta-oxothioctic acid, or potassium beta-oxothioctate:

Formula 1a



Formula 2



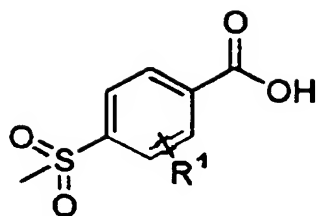
wherein:

R¹ and Ar are as defined in claim 1;

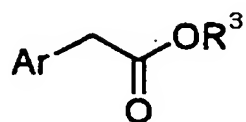
R³ represents C₁-C₃ alkyl.

6. (Original) A method according to claim 5, wherein the propionic acid derivative of formula 2 is prepared by reacting a methanesulfonylbenzoic acid derivative of formula 3 with an aryl acetate derivative of formula 4 in the presence of a base;

Formula 3



Formula 4

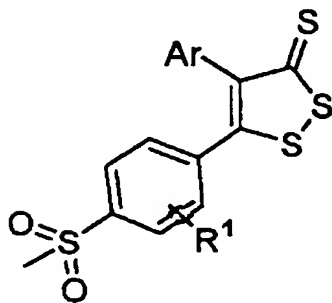


wherein:

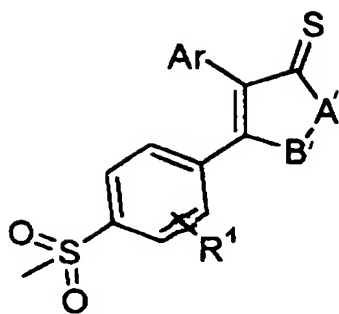
R¹ and Ar are as defined in claim 1 and R³ represents C₁-C₄ alkyl.

7. (Original) A method for preparing a thione derivative of formula 1b or a non-toxic salt thereof, comprising reacting a thione derivative of formula 1a with NHR²NH R² or NH R²OH in the presence of a base;

Formula 1a



Formula 1b



wherein:

A' and B' each independently represent S or NR², provided that A' and B' are not simultaneously S; and

Ar and R² are as defined in claim 1.

8. (Currently Amended) A pharmaceutical composition comprising a therapeutically effective amount of a thione derivative or a non-toxic salt thereof according to claim 1 ~~to claim 3~~ as an active ingredient and a pharmaceutically acceptable carrier for the treatment of fever, pain, and inflammation.